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TECHNICAL REPORT

Drug prevention: exploring a systems perspective

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Contents

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Glossary

Environmental prevention: strategies targeting the contexts for behaviour through changing the prompts and cues that guide behaviour. Regulatory (opening hours, smoking bans, behavioural norms), physical (shape/size of glasses, crowd management in bars, school environment) and economic (pricing, taxation, incentives) measures are applied to prompt more adaptive, healthier, behaviours, or to prevent harmful behaviours.

Evidence-based interventions: interventions whose outcomes have been evaluated and proven beneficial, to some extent, in changing target behaviour.

Feedback loop: a cause-and-effect process where the output of one component of the system influences one or more other components, which in turn influence the input to the original component.

Indicated prevention: an approach that identifies individuals with behavioural or psychological problems that predict a higher risk of substance use problems later in life and intervenes with these individuals. In most European countries, indicated prevention continues to primarily involve counselling young substance users.

Manual-based intervention: evidence-based interventions for which specific protocols have been developed to enable their successful (adaptation and) implementation in different contexts. Same as **manualised intervention**.

Reitox: European information network on drugs and drug addiction.

Selective prevention: intervention with specific groups, families or communities who are more likely to develop drug use or dependence because they have fewer social ties and resources. Early intervention approaches may have different goals, but generally aim to delay or prevent the onset of problems (including substance use), rather than respond when problems appear.

System: a set of components organised for a common purpose that are connected to, and interact with, each other to form an integrated whole.

Universal prevention: addressing entire populations, usually in school and community settings, with the aim of giving young people the social competences to avoid or delay initiation of substance use.

Abbreviations

CTC: Communities that Care.

EDPQS: European Drug Prevention Quality Standards.

EMCDDA: European Monitoring Centre for Drugs and Drug Addiction.

EU: European Union.

SFP: Strengthening Families Programme.

UNODC: United Nations Office on Drugs and Crime.

UPC: Universal Prevention Curriculum.

WHO: World Health Organization.

Introduction

A systems approach to drug prevention

This report considers substance use prevention in Europe through the lens of a *system*, highlighting the wide range of factors that need to be addressed to successfully implement substance use prevention programmes and policies. This is of importance because practitioners, policymakers and researchers consider prevention from different viewpoints and have different priorities. While researchers will focus on developing effective interventions and rolling them out, practitioners centre their attention on a meaningful interaction with their target populations. Policymakers, in turn, are engaged in developing policies that deal with public concerns, and in keeping stakeholder organisations well coordinated. Having sets of diverging (and incomplete) views on what is important for prevention can be an obstacle to the efficient use of evidence (of what works and what does not) and the effective implementation of prevention programmes. As a result, there is increasing interest in systems thinking, an approach that draws attention to the variety of complex processes that are necessary for evidence-based programmes to be implemented as part of wider prevention strategies, and may therefore have the potential to unify these differing perspectives within a single model (Durlak, 2008; Hassmiller Lich et al., 2016; Rutter et al., 2017; Spoth et al., 2013).

A system is composed of a set of elements organised for a common purpose that are connected and interact with each other to form an integrated whole. The system is not simply its parts, but importantly also the interactions between them. To be useful, a systems view of prevention needs to encompass all forms (universal, selective and indicated) and functions (developmental, environmental and informational) of prevention currently under debate (Burkhart, 2013; Foxcroft, 2013). Most importantly, systems thinking can provide additional perspectives to complement the current focus on evidence-based interventions and programmes. The selection of an effective intervention is only one step in the quality circle of the European Drug Prevention Quality Standards (EDPQS) (EMCDDA, 2011b). A systems approach highlights the many other determinants that can be optimised to achieve sustainable and detectable prevention effects at population level.

This report is a first step in developing a prevention system model, beginning by identifying and discussing the different factors and conditions of prevention systems across Europe (in European Union (EU) Member States, Norway and Turkey). It looks into how and by whom prevention is conceived, planned, organised, delivered, evaluated, improved and received. It goes beyond school lessons, events for families, tables with leaflets at festivals and motivating youth on the streets. It identifies and includes additional variables and aspects of a society (e.g. social inequality) that can boost (or impede) the implementation and impact of prevention interventions and policies. These variables — here called moderators — are not generally seen as pertaining to prevention and are difficult to modify through prevention policies. Yet they are determining aspects of a public health prevention system (Sniehotta et al., 2017).

In this report a simple model is proposed that may be a useful starting point for comparing and analysing national or regional approaches to prevention. The first step towards developing a systems approach to identifying problems or taking action to improve provision is a description of the core components of the system in question. Therefore, attention is given to the moderators and to the five putative components of the prevention system: organisation, research and quality assurance, interventions, workforce and target populations. The discussion also considers the interactions between them.

This report is based on data drawn from multiple sources, including international prevention literature about implementation science, European grey literature, country reports on prevention and expert ratings from the Reitox network, and additional data sources from scientific networks about other determinants of prevention. There are, however, important gaps in information (see Section ‘Possible ways forward’). While the report provides the reader with an overview of the different elements and

people that play a role in how prevention theory is operationalised in daily life, it is to be taken not as a fully developed model, but rather as a first attempt to stimulate interest in prevention systems and encourage further development in this area.

Relevance to Europe

A systems approach may be particularly important for considering prevention activity within the multi-faceted cultural and structural reality of Europe, in which many elements of prevention systems vary substantially from one country to another. While this is particularly the case regarding the training and professional cultures of the workforce, the actual conditions for implementing and improving prevention may also be fundamentally different. Similarly, when monitoring the extent and nature of prevention activity within countries, it is important to consider all relevant components of the prevention system and not just the use of particular programmes.

Although many European countries have national drug strategies with common prevention priorities, delivery differs enormously between them. This is because of variations in funding, organisational responsibilities and political powers at different levels. Professional perspectives may also have developed differently in each country, depending on which professional groups became involved in prevention over time. Accordingly, preferences regarding where, how and for whom prevention is carried out are often more cultural and historical than empirical.

Using systems thinking to look at existing variations in components essential to the functioning, uptake and sustainment of interventions may prove productive when new interventions are to be rolled out into some or all Member States (under EU action plans, for instance). For example, manual-based programmes might be particularly difficult to implement in certain countries, while environmental strategies might be hard to implement in others. Under the current trend, in which effective interventions and evaluation are demanded at all levels, it is important to draw attention to other influential components.

For the most part, the prevention strategies of the EU and (most of) its Member States are compartmentalised into crime, drugs, alcohol, etc. A systems approach is then all the more relevant in clarifying how, for instance, evidence-based crime and violence prevention share many aetiological factors and principles of effective action with substance use prevention, or in understanding how (illicit) drug prevention and alcohol policies may interact in positive (or negative) ways with environmental approaches.

A systems approach to prevention can be useful to researchers, practitioners and policymakers because it:

- draws attention to the relevance of approaching prevention as a system in which many different components and their interaction are considered;
- suggests that ‘Does the intervention contribute to effectiveness?’ is a more pertinent and comprehensive research question than, for instance, ‘Is it effective?’;
- goes beyond a particular focus, e.g. only on evidence-based programmes and their implementation, towards a broader consideration of supporting factors and actors;
- encourages the planning and provision of resources for all the different components of the system that are necessary for effective prevention;
- assesses the system compatibility of new approaches beforehand and identifies what adaptations are needed in order to increase system readiness;
- encourages the adoption of multi-modular interventions and policies, with modules that allow increased or reduced complexity or intensity according to the system characteristics;
- facilitates the development of implementation checklists to assess the most relevant components before implementing programmes or policies — these can help to make multi-site evaluations more meaningful and comparable;

- encourages action plans at different levels that consider a wider range of policy options and stakeholders; and
- recognises that professionals' behaviour and attitudes are more likely to change when multi-component implementation strategies are employed, particularly in the case of new, more science-based approaches.

In this way, a systems approach may help achieve sustained behavioural change by leading to the establishment of multi-level, multi-tiered, multi-component prevention systems that are able to effectively deliver appropriate evidence-based interventions.

Prevention systems

A brief introduction to systems theory

General systems theory (Von Bertalanffy, 1968) is a way of describing different kinds of systems with interacting components. The aim is to discover patterns and to find principles that can be distilled from and applied to all types of systems, be it in biology, social sciences, administration or mathematics. Within this framework, the prevention field could be conceived as a complex system, since there are many components (some of them unknown or undetermined) that interact with each other in an almost unpredictable way, similar to an organism or the climate. Complex systems typically have feedback loops, a certain degree of spontaneous order or self-organisation (which is stable), and an emergent hierarchical organisation (Simon, 1991). Such a complex system is adaptive to changes in its local environment, is composed of other complex systems (e.g. the human body), and behaves in a non-linear fashion so that change in outcome is not proportional to change in input (Shiell et al., 2008). Common to all systems thinking is a comparison of an environment (or situation) as it is with some model of the environment as it might be. This comparison can lead to a better understanding of the environment (the research and analytical part), and to proposals about how to improve it.

Systems theory has been applied less to prevention, and the concept of a prevention system itself is relatively recent. It has predominantly been used in two ways. One way is to describe prevention programme delivery systems, such as the Communities that Care (CTC) system. CTC brings together community stakeholders and assists them in making science-based choices about the most appropriate evidence-based prevention programmes to be implemented in their community (Arthur et al., 2010; Fagan et al., 2011; Van Horn et al., 2014). The PROSPER project (Promoting School-community-university Partnerships to Enhance Resilience) is another example with the same objective, of improving the fit and uptake of prevention programmes for different contexts or communities (Chilenski et al., 2013; Spoth et al., 2013). These approaches are in line with the main focus of implementation science, which is concerned with improving the scaling up, fidelity, acceptance and sustainability of manual-based prevention programmes in different contexts (Palinkas et al., 2015; Spoth et al., 2011). This approach to systems is hence very much focused on increasing the acceptance and impact of manual-based interventions.

The other way aims at comprehensively describing the higher-level complexity of combined systems, such as the interactions and feedback loops between human behaviour, human physiology, laws and regulations, the policy cycles, stakeholders and organisations, and the various regulatory or behavioural interventions. Instead of focusing on each of these formal systems (pictured often as an organisational chart, biological systems or technology), their authors present the idea that systems can be thought of as the forces and factors affecting, arising from and responding to a problem or behavioural outcome of interest, as well as the structure (rules and relationships) directing how these factors change over time. Systems are then a functional whole, composed of a set of components, coupled together to function in a way that might not be possible if one looks only at the functioning of the separate component parts (Hassmiller Lich et al., 2016; Kriznik et al., 2018; Rutter et al., 2017).

This approach is highly theoretical, combining a plethora of different data and many hypothetical assumptions. It is very useful in showing the importance of complex evaluations and in dissipating overly simple assumptions that certain policies or interventions ‘work’ (or not) in changing human behaviour. This approach may be relevant to substance use behaviour, which is a complex phenomenon and is influenced by individual-level, biopsychosocial factors as well as structural and societal determinants (Wicki et al., 2010). The level of knowledge and awareness plays a minor role in influencing behaviour. In prevention of substance use related problems, inter- and intrapersonal factors are crucial but the environments in which individuals live and the cross-influences between social systems also play an essential role (Buehler and Thrul, 2013).

While these two approaches provide valuable innovative models for explaining behavioural change through a comprehensive systems perspective, they appear to assume that the elements of a system are malleable: when they are adjusted, behavioural outcomes will be improved. Consideration of the available information about how and by whom substance use prevention is planned, funded, researched and delivered in European realities may be able to contribute to this perspective by identifying the historically grown key elements of prevention delivery in Europe. It reveals that they are very heterogeneous and many elements cannot easily be changed. Rather, innovations in prevention may need to adjust to the existing system characteristics, which might change only slowly or not at all.

The UNODC International Standards on Drug Use Prevention (UNODC, 2013) incorporate the concept of national and local prevention systems. At the European level, during the collaborative work across Europe to develop the EDPQS (EMCDDA, 2011b), the concept of 'prevention system' achieved a broader meaning: it went beyond the focus on manual-based programmes, to encompass all different kinds of prevention activities, services and policies. For example, a recent publication from the EDPQS is a toolkit intended to support the adaptation of quality standards to different prevention systems (Brotherhood et al., 2015, p. 14, step 2).

The prevention system model set out in this report follows this approach, which is situated midway between the two previously described. The essential feature of this systems approach to prevention is that it recognises the dynamic interactions between the interventions and the broader context into which they are introduced, but it does not go as far as to encompass their interaction with the behaviour and physiology of individuals. These ecological systems can be schools, municipalities or entire societies. Three dimensions of them are important: (1) the activity settings (e.g. clubs, festivals, assemblies, classrooms); (2) the social networks that connect the people and the settings; and (3) time. An intervention, for example a local policy or an evidence-based programme, may then be seen as a critical event in the history of a system, leading to the evolution of new structures of interaction and new meanings. These can be changing relationships, displacing existing activities, and redistributing and transforming resources (Hawe et al., 2009).

Prevention systems are directly interwoven with existing substance use prevention policies, which generally aim to develop and deploy infrastructures, interventions and services in order to reduce the incidence of substance use problems and associated or preceding problem behaviours, mostly at population level. Across Europe, there is great variation in the development and deployment of these components. In addition, there are higher-level factors that are likely to influence the functioning of prevention systems, such as national legislation, social capital and social inequality. It seems therefore essential to be mindful of the main components of prevention systems and take into account not only interventions or services and their characteristics, but also organisational infrastructures and the professionals who work in the system (Horton, 2014; Lindamer et al., 2009; Ritter and McDonald, 2008).

This report represents a first attempt to present a basis for a wider view of formal prevention systems, going beyond the focus on better implementing evidence-based manual-based programmes yet without entering into the depths of complex system analysis. It is a model that aims to reflect the particular European realities, based on available information from EU Member States and Norway about how prevention is conceived, organised and delivered. The proposed model is therefore driven by data rather than theory. It draws on national reports and prevention workbooks from 2014 to 2017, structured questionnaires delivered in 2017, and external data about social norms, tobacco control and alcohol control. Qualitative information was sometimes coded into scores, the composition of which is explained in the corresponding graphs. The component elements of formal prevention systems analysed in this way had been identified previously in a meeting with experts from Germany, Spain, Italy, Austria, Poland, Portugal, Sweden and the United Kingdom at the EMCDDA in October 2013.

Proposed model for an overall prevention system

Five putative components of a prevention system are proposed and analysed here: (1) organisation, (2) research and quality control, (3) interventions, (4) workforce and (5) the target populations themselves. These are complemented by a set of moderators that influence the interaction of these components.

FIGURE 1
Components of a prevention system

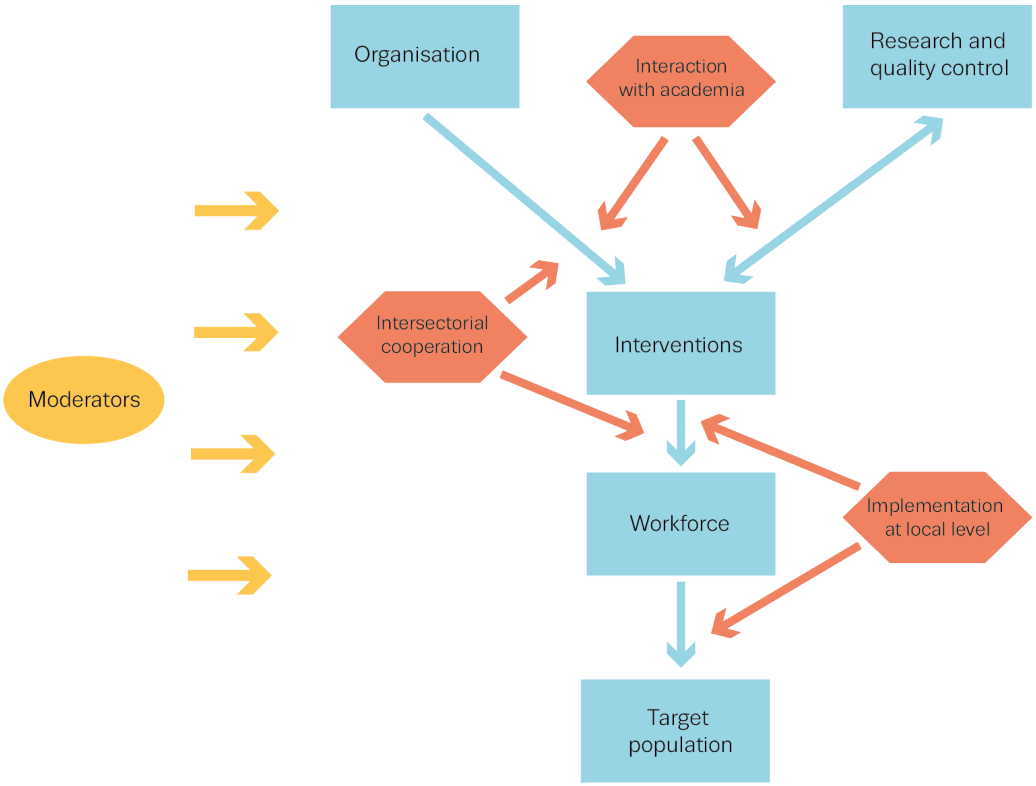


Figure 1 describes how the interaction of the components is hypothesised here: from conception and planning to reach the intended target populations, or not. Because this system-focused way of looking at prevention is relatively new, gathering information on these components is challenging, as some important pieces of information are not readily available. For example, political will or cooperation and professional cultures are difficult to assess. However, countries do report on the type of interventions (manual-based programmes or services); the existence of effective (and certified) programmes and how they are generally implemented; the extent to which research centres are involved in evaluation and development; how prevention is funded; whether or not quality criteria are linked to funding of interventions; and how prevention policies are delivered in organisational terms. Less information exists about the level of professional training in prevention; the composition of the prevention workforce; the extent to which the different administrative sectors (i.e. education, health, youth, criminal justice) cooperate; and how much policymakers and professionals know about effective prevention principles.

In addition to the structural system itself (providers, professionals and programmes), it is important to describe contextual mediators and moderators. Mediators consist of the elements whose modification through policies can change the overall impact of the prevention system, such as administrative organisation, intersectoral cooperation, interaction with academia and implementation. Moderators (e.g. social capital, or alcohol and tobacco policies), on the other hand, are those factors that cannot

be easily modified but nevertheless are here hypothesised to influence the overall delivery of prevention. This model is conceptually similar to recently proposed community systems models for obesity (Allender et al., 2015) and for behavioural change through environmental structures (e.g. MINDSPACE; Institute for Government, 2009), all of which propose interaction of different contextual and behavioural elements.

The following sections provide a detailed look into each of the five components and the moderators of the prevention system set out here.

Organisation

This first component could cover a vast array of aspects, but here it is considered to cover only three aspects of how prevention delivery is organised: where decision-making happens; how the cooperation between policy sectors occurs; and how prevention is funded. Information about needs, from the local level, would provide an important feedback loop here.

This narrow perspective reflects the centrality of state policies and resources in prevention provision. While for treatment there might be actual demand by clients, which in turn can potentially drive the development of a private offer responding to it, without state intervention, this is very unlikely to happen in the prevention field. Parents are likely to pay for the treatment of their offspring from their own pocket, but not for a prevention intervention. This illustrates how much policymaking (and sometimes research) has to drive prevention. In addition, most non-public prevention providers — non-governmental organisations (NGOs), associations, universities — rely heavily on public funding and sometimes on support from foundations, insurance companies (in Germany), religious bodies or even industry (Moodie et al., 2013). The political decisions on how prevention is delivered in organisational and infrastructural terms have therefore larger consequences than in intervention fields where people themselves (or their insurance) pay for services. If, how, where and for whom prevention interventions are developed, funded and deployed depends to a far larger degree on political decisions (at least at local level) than on demand (as in treatment) or on bottom-up initiatives (as in harm reduction). The different political organisations of countries therefore play a major role in implementing (or not) evidence-based prevention. Furthermore, policies can have an impact on the sustainability of prevention at local and national levels (Aarons et al., 2014).

A US evaluation study, which assessed state substance abuse prevention system infrastructures in order to examine their role in achieving prevention-related outcomes, suggested that a functional state prevention infrastructure is linked to both funding from the state government and the presence of a state interagency coordinating body with decision-making authority (Piper et al., 2012). This provides support for the three key elements in the organisation of substance use prevention systems that are highlighted in the model proposed here and discussed in the following subsections: decision-making, intersectoral cooperation and funding.

Decision-making

Decision-making at central and local levels

The level of strategic decision-making can be critical when moving from policy decisions to policy implementation. According to an Australian study, there are differences in the influence that different stakeholders have on the actual decision-making: councillors, chief executives, public health managers and the community are highly relevant, while academics are less so — suggesting that the use of evidence in prevention policymaking is not straightforward (Armstrong et al., 2014). The influences on decision-making may be different at local and national levels. While there are key institutions at different levels, strategic decision-making relating to prevention in most European countries lies at the central level. Only a few countries (Czechia, Denmark, Germany, Spain, Latvia, Austria and the United Kingdom) also reported local and regional decision-making.

The use of evidence in decision-making

Given the high leverage of centralised decision-making in prevention, the question is if and how this affects the way prevention policymaking uses evidence and incorporates innovations (and insights from the prevention sciences) in prevention methodologies. There seems to be no agreed theory about how research findings and interventions can effectively influence decision-makers' use of evidence. Researchers often assume that policymakers do not use evidence and that more research evidence use would benefit policymakers and populations (Cairney and Oliver, 2017). By focusing on getting evidence into policy, they have paid less attention to how research and policy actually interact. 'Rather than asking how research evidence can be made more influential', Oliver et al. (2014) argue,

'academics should aim to understand what influences and constitutes policy, and produce more critically and theoretically informed studies of decision-making'. A recent analysis of the factors that influence policymakers' decisions identified six intervention mechanisms (Langer et al., 2016):

- awareness of evidence-based interventions;
- agreement about what is evidence;
- communication and access to evidence;
- facilitation of engagement between researchers and decision-makers;
- decision-makers' skills in accessing and using evidence; and
- influencing decision-making structures and processes.

Several of these elements will appear again in this analysis. Research may also need to be more attuned to the needs of policymakers and practitioners, thus fundamentally changing the way in which research is produced and consumed. Rather than academics setting the agenda, an alternative approach to knowledge co-creation would see researchers working together with those they are seeking to address, to define research questions, agree on methods, and assess the implications of the data analysis and findings for policy and practice (Hunter, 2009).

There are a range of relevant options and ways in which policymakers could advance evidence and innovation in prevention, especially when they have considerable control of the delivering services/agencies and when funding is centralised.

Assessing local needs

For sound decision-making, a proper assessment of local needs is essential. However, unlike for harm reduction and treatment, in prevention a systematic approach to assessing the needs of the population is often missing. And since prevention — as discussed above — has few or no market features, there are few natural incentives for the system to consider input (i.e. needs and demands) from its target populations. However, to improve the health of the population and to ensure the use of resources in the most efficient way, systematic assessment is essential in preventive work (Wright et al., 1998). The Reitox country reports do not provide a detailed picture of the extent to which interventions correspond to actual health needs or vulnerability profiles. However, some countries do explicitly report that municipal-level data are used to inform important decisions regarding the overall strategy (Bulgaria), or that officials at the local level are consulted and allowed to participate in establishing strategies and priorities for prevention (Denmark, Croatia, the Netherlands, Austria, Portugal and Norway). Norway stands out for its Ungdata surveys ([1]), a standardised system of local questionnaire surveys on various aspects of young people's lives, including the use of drugs, alcohol and tobacco. The questionnaire consists of a mandatory basic module that is used in all the surveys, and a set of optional, predefined questions from which the municipalities can choose. They can also add their own questions. The surveys are carried out during school hours and are conducted electronically. The number of municipalities that use Ungdata is increasing every year, and many municipalities have decided to carry out Ungdata surveys every third year. This means that the database contains information that makes it possible to study changes in young people's relationship to alcohol, drugs and tobacco over time, and above all across local levels. In addition, the implementations of CTC in Lower Saxony in Germany ([2]) and in the Netherlands (Steketee et al., 2013) use specific youth surveys in order to create local risk profiles that support decisions about which kind of programme should be implemented in a given neighbourhood or town.

Intersectoral cooperation

A recent joint publication by Unesco, the UNODC and the WHO (2017), about the role of the education sector in substance use prevention, sheds a revealing light on an often overlooked detail: in many countries, the policy sectors that could reach the sections of the target populations that are

([1]) http://www.ungdata.no/English
([2]) https://www.ctc-info.de/

most important for prevention do not cooperate with the entities that develop prevention policies. Even if interventions have been proven effective and been successfully implemented in an array of countries, many school authorities nevertheless refuse to have them implemented. Ideological standpoints on how prevention should be done are but one reason (EMCDDA, 2013; Burkhart 2015a). Often the relevant policy sectors do not see how they will derive any benefit from providing resources for prevention. It is not only the education (school-based prevention) and social sectors (family-based prevention) that are unenthusiastic. Ministries of the economy and trade that are receiving alcohol, gambling and tobacco tax incomes may feel they need to balance the interests of these industries (including advertising, publicity, etc.) with the need for addiction prevention. The tensions between addictive goods as sources of revenue and as burdens upon health (Casswell and Thamarangsi, 2009; Moodie et al., 2013) are often more pronounced in municipalities that depend, sometimes heavily, on the nightlife industry (Calafat et al., 2011; Hall, 2005; Hobbs, 2005; Winlow and Hall, 2005). Different ministries may also have different priorities. Health ministries will be most interested in addressing health harms, justice ministries in crime, and education ministries in educational achievement.

Measuring levels of cooperation is challenging and from the Reitox country reports it is difficult to ascertain the extent to which the different policy sectors actually cooperate, even if formally every country has a drugs coordinator. A few countries have interministerial commissions (France and Lithuania) or official institutions entirely dedicated to prevention tasks and responsible for coordinating prevention among the different ministries (Hungary). Information about more than a third of the countries ([3]) suggests that there is de facto cooperation. Austria, while having no national coordinating body for prevention, facilitates access to the school system for the implementation of evidence-based programmes, whereas in some other countries such programmes are not readily accepted by the school system. Often though, cooperation is good at local level. In Denmark, the BTI model (Bedre Tværfaglig Indsats, Danish for 'improved interdisciplinary efforts') for systematic interdisciplinary cooperation targets local staff in services and can be adapted to existing work in the municipalities. The BTI model assures quality in integrated, coordinated efforts, without interrupting the follow-up of children, young people and families who need help. Similar systems exist in Norway and in some regions in northern Italy. This is also why many prevention quality standards ([4]) highlight the importance of establishing alliances and coalitions with key actors for prevention at local level.

Funding

Funding avenues are an essential requirement for the development of effective interventions but also for their successful implementation and sustainability (Fixsen et al., 2005). However, data on funding are scarce and there is not enough information for precise estimates of what is needed and provided to finance prevention activities. In Europe, almost all countries report central national funding allocations, but some countries, such as Czechia, Germany, Spain, France, Latvia, Austria and the United Kingdom, also mention regional funding resources for prevention. Exceptionally, in Denmark local funding services are predominant.

In most European countries, funding for prevention derives from ministries or the drug coordinators at federal and local levels that are responsible for prevention. While public funding is expected to remain a central source in supporting prevention, it is possible that funding from insurance companies may increase in the future, as is the case in Germany and France. In Bulgaria, Austria and Poland, small parts of alcohol and tobacco tax revenues are used as investments for substance use prevention, whereas in Spain the confiscated assets of drug traffickers can be channelled into prevention funds. In some countries in northern Europe, revenues from the gambling industry feed into prevention funding. These funding sources are primarily at the central level as well.

([3]) Czechia, Denmark, Ireland, Greece, Lithuania, Luxembourg, Poland, Romania, Finland, Sweden and Norway.
([4]) See for example CTC Coalition (http://www.communitiesthatcarecoalition.org/); EDPQS Toolkit 4 on Adaptation and Dissemination (http://prevention-standards.eu/toolkit-4/); EDPQS quick guide (http://www.emcdda.europa.eu/attachements.cfm/att_218446_EN_TD0113424ENN.pdf).

Because of the strong political determinants of prevention discussed above, funding may, however, be allocated only to certain activities orientated to particular outcomes that are predetermined by policy, such as delivering universal prevention only, or focusing on use behaviours with low prevalence but high visibility and policy relevance (e.g. use of new psychoactive substances, which attract media attention), or particular approaches, such as scare tactics or information only.

Research and quality assurance

One of the most vital features of a prevention system is its capacity to translate scientific findings, new paradigms, effective interventions and principles of effectiveness into practice and into the functioning of existing services or infrastructures. In this regard, three challenges are important to mention:

1. The evidence of what works in prevention is not well known among decision-makers and practitioners. This is despite recent comprehensive reviews of the evidence in prevention (EMCDDA, 2015b; UNODC, 2013; EMCDDA Best Practice Portal), and the development of standards concerning the implementation of prevention — the EDPQS (EMCDDA, 2011b).
2. Most of the literature that comes from North America focuses on having practitioners use evidence-based prevention programmes and on optimising the delivery systems or infrastructures for such programmes (Berkel et al., 2011; Merrill et al., 2006; Schoenwald and Hoagwood, 2001; Sloboda et al., 2014). Less research is focused on how to translate the evidence into policies or on non-manualised activities (Aarons et al., 2010; Fishbein et al., 2016; Proctor et al., 2009).
3. The pathways from evidence via policies to practice are predominantly conceived as unidirectional. Rarely does research address the gaps in prevention practice or the needs of practitioners.

Cairney (2015) describes two largely antagonistic models of how evidence can interact with policymaking or practice. In the policy emulation model, the most important evidence comes from the systematic reviews of randomised control trials. In this approach, the scale-up requires that the same system be introduced in each area, with very limited discretion to adapt it to local circumstances and preferences. In the alternative model, storytelling and improvement science, there is less commitment to a hierarchy and more weight given to elements such as practitioner experience, governance principles, the 'assets' of communities and feedback from individuals and service users . This allows more space for policymakers to create a supportive environment in which practitioners and users can tell stories of their experience, and invite other people to learn from them in the storytelling approach. In the improvement science approach, policymakers might also train practitioners in a particular method, and then invite them to experiment in their local areas (Cairney, 2015). This approach may be a better match to the reality of policymaking, but presents challenges to the use of evidence-based programmes: too many local adaptations and decisions on which programmes to apply — based only on professional experience — can lead to suboptimal responses and outcomes. The CTC model (also in its European version) tries to reduce this problem by providing local surveys that allow the identification of the evidence-based programmes best fitted to the particular vulnerability profile of the local population.

There is a range of mechanisms to ensure that prevention provision is evidence based and of high quality. The EDPQS can be used as a reference point for high-quality drug prevention, but their applicability to local circumstances has to be considered. Data suggest that standards for prevention are currently widely available across Europe: two-thirds of the countries report the use of prevention standards; the EDPQS are predominantly mentioned, while a few countries ([5]) report their own.

A relatively simple way to ensure that interventions and policies are in line with evidence (or what policymakers and funders consider their priorities) is the use of conditional funding: providing funding only to interventions and strategies that fulfil certain standards or quality criteria. Currently, there are two Member States making full use of this mechanism at national level: Portugal and, with respect to government-funded school-based programmes, Czechia.

Most countries report the development of new interventions (some of them manual-based programmes) and of local policies, but only in a few cases are these scientifically evaluated for

([5]) Belgium, Czechia, France, Lithuania, Hungary, the Netherlands and Finland.

behavioural outcomes. Their roll-out and widespread implementation may often prove difficult, as has been reported in, for example, Germany, Spain and the United Kingdom.

Technical assistance is another important strategy that can, in principle, improve the quality of prevention by enhancing the readiness of practitioners to implement evidence-based prevention interventions. It may also, in the same way, improve the uptake and sustainability of innovations. This kind of scientific support, advice and guidance is particularly important to, and developed in, countries where the delivery of prevention is largely delegated to the local level and where the use of manual-based programmes is rare, as in Portugal and some Nordic countries.

Interventions

Drug prevention approaches are very varied, ranging from those that target society as a whole (environmental prevention) to interventions focusing on at-risk individuals (indicated prevention). Most prevention strategies focus on substance use in general; some also consider associated problems, such as violence and sexual risk behaviour; a limited number focus on specific substances such as alcohol, tobacco or cannabis. One of the main challenges in drug use prevention lies in matching different strategies — from indicated to environmental — to target groups and contexts and ensuring that they are evidence based and have sufficient population coverage. In this section attention is given to three particular types of interventions: manual-based prevention programmes, selective and indicated prevention services, and environmental prevention policies. They vary in scope, approach and focus, and showcase the different perspectives and priorities that a systems approach to prevention is able to incorporate.

The role of manual-based programmes

Manual-based (or manualised) prevention programmes are evidence-based interventions for which specific protocols have been developed to enable their successful adaptation and implementation in different contexts. Having easy access to manual-based prevention programmes is certainly important for efficient knowledge transfer and translation, both within and beyond national borders. Therefore, much prevention literature focuses on evaluating them and on their effectiveness and readiness for dissemination. However, one of the most distinctive features of European prevention systems is that manual-based interventions often do not play a significant role in prevention. There are, of course, exceptions to this. In Spain some regions (e.g. Castile and Leon) have catalogues of certified programmes from which local prevention services and schools can make a choice. Germany, Croatia, Lithuania, the Netherlands, Poland and the United Kingdom have all increased their development or adaptation and implementation of evidence-based programmes in recent years. In those countries, registries of programmes (see below) are also available. At the other end of the continuum, Sweden and Norway are deliberately reducing the role and importance of manual-based programmes to give more space for communities to develop their own interventions. In Denmark, France and Finland, manual-based interventions never had a high profile, and only recently some programmes, such as the Good Behaviour Game and the Strengthening Families Programme (SFP), have sparked interest among policymakers in France. For the most part, however, across Europe manual-based interventions may coexist with a majority of interventions that are less complex and do not demand adherence to a given protocol.

Manual-based interventions are not seen as relevant to all situations. In the fields of selective and indicated prevention, the higher the vulnerability level of the target groups, the more important it is to cater in a flexible manner for the needs of the vulnerable groups or individuals (e.g. in street work or family visiting). High-risk individuals are likely to have multiple complex needs in addition to drug use, and practitioners will often respond to acute concerns such as housing and abuse. Delivering a drug prevention programme might sometimes seem irrelevant in this context, but there are evidence-based manualised programmes available in Europe for selective prevention (e.g. the SFP) and for indicated prevention (e.g. Preventure) (EMCDDA, 2013).

Prevention services

Prevention services can encompass a plethora of interventions: counselling, advice, personal help and support to vulnerable young people, vulnerable families and substance-using young people. These interventions can be delivered on the street, in recreational settings, at home visits or in service facilities and they might range from universal to indicated prevention. The contents of the latter are rarely known, except for specialised interventions such as crisis intervention in party settings or brief interventions with motivational interviewing. There are some data on how these services predominantly operate, i.e. whether professionals actively reach out to vulnerable young people and families (go strategies) or expect people to come to their facilities (come strategies). In Europe, come

strategies prevail for most vulnerable groups. Especially for indicated prevention, individualised services have particular importance, since they involve work with vulnerable individuals that cannot be defined by demographic or geographic factors. Instead they come from all classes and backgrounds, and are known to be personally vulnerable to several kinds of problems, especially psychological disorders or problems brought on by a poor/dysfunctional family situation. In this context, individual- or family-oriented services seem to make most sense. Good coordination and involvement of treatment services are also important in this context, particularly when it comes to approaching and catering for substance-using parents. The challenge lies in the development of appropriate detection and intervention systems at local level and in promoting cooperation with specialised services (from the treatment and mental health areas). Data on the availability of these systems are lacking and there are few reports about their functioning (Espelt et al., 2012; Ramírez de Arellano, 2015). The fact that these services are often not conceived or developed primarily for substance use prevention purposes is a contributing factor to the scarcity of data available.

Environmental prevention approaches and policies

Services and manual-based interventions deliver prevention predominantly by means of personal interaction, skills training, discussions, education or individual counselling. With the increasing evidence for the potential of interventions that shape the physical, economic and normative environment of people (Burkhart, 2011; Hollands et al., 2013; Hollands et al., 2016), environmental prevention approaches are becoming more visible components of prevention systems (EMCDDA, 2018). Most of them are, however, developed at local level and are seldom defined and labelled as substance abuse prevention interventions. The most common types in Europe are (1) regulation of nightlife environments, (2) implementation and reinforcement of (alcohol) policy at local level, (3) supporting school policies/environments and (4) violence prevention and security policies. Each of these is now detailed below.

Nightlife is a good example of where social and physical environments, prices and serving practices significantly affect substance use and related problems, including violence (Hughes et al., 2011; Miller et al., 2009). In such settings, the modification of physical spaces, visual cues and affordances offer — in theory — multiple intervention opportunities that are compatible with low personal agency, which is essential in environments where people are not seeking to control or moderate themselves (Fleming and Bartholow, 2014; Ostlund et al., 2010; Withagen et al., 2012). Accordingly, the potential (and the existing evidence) for multi-component local policies regulating nightlife and its corollaries (transport, nuisance, drunk driving, etc.) is higher than for the prevailing interventions that provide information and sometimes personalised advice (Bolier et al., 2011; Calafat et al., 2009).

Municipalities, particularly in regions with declining or weak economies, may depend on nightlife, or need to promote it, as a source of wealth and wellbeing while trying to minimise the problems associated with it (Hobbs, 2005). Local governments can play a major role in promoting and supporting environmental approaches that can be undertaken by professionals and technical staff of the different municipal areas that they cover (Duch et al., 2016), such as the regulation of opening hours, banning trade in alcohol in certain places and/or at certain times, increasing and reorganising police surveillance, ensuring strict compliance with the law, and securing perimeters to reduce antisocial behaviour.

Policies can regulate numerous elements of nightlife, such as the access of intoxicated patrons, alcohol-serving practices, happy hours or flat-rate offers, crowdedness, chill-out rooms and the areas around the premises. These are often reported in northern Europe (Belgium, some German regions, France, Luxembourg, the Netherlands, Sweden and the United Kingdom), but rarely in southern Europe (except Catalonia), where the big international nightlife resorts are located.

The implementation and enforcement of (alcohol) policy at local level are not without their challenges. National alcohol policies are not always fully implemented at local level, particularly in smaller

municipalities, where local decision-makers might have to balance them against their commitments to the local trade and to cultural drinking traditions. Municipalities have nevertheless great potential to intervene effectively in their jurisdictions because they often enjoy considerable decision latitude in defining which local regulations to implement (Giesbrecht and Haydon, 2006). Examples of these local regulations include those pertaining to the density and concentration of outlets, type of selling venues, and selling and serving policies. Legislation in several countries allows alcohol consumption to be addressed locally and beyond the focus on individual premises. The early morning restrictions and late night levies in the United Kingdom are a good example (Martineau et al., 2014). Also in the United Kingdom, local authorities can designate cumulative impact zones to control new alcohol outlets in areas where the cumulative stress caused by existing overprovision of alcohol outlets threatens the objectives of licensing. In Europe, there is increasing evidence for the impacts of local alcohol policies in Spain, the Netherlands, Sweden and the United Kingdom.

With regard to supporting school policies and environments, there is emerging evidence that positive school climates that make pupils feel safe, stimulated and accepted may have a preventive effect against violence and substance use (Bonell et al., 2013; Jamal et al., 2013; Thapa et al., 2013). School norms and rules, in turn, support policies, as they reduce the visibility, and therefore the illusion of normality and social acceptance, of substance use in (and sometimes around) school premises (Kuntsche and Jordan, 2006; Kuntsche and Kuendig, 2005). They are easier to monitor as well. In Europe, environmental prevention approaches in schools have expanded and today almost all countries report total smoking bans in all schools, and a majority of them report that most schools have drug policies, i.e. rules on the use and sale of substances on school premises and procedures on how to deal with violations.

Although often unacknowledged, outcomes of the prevention interventions can also be beneficial in behavioural domains beyond substance use, such as the prevention of violence, delinquency, academic failure, teenage pregnancies and unprotected sex (Flay et al., 2004; Jackson et al., 2012; Van Horn et al., 2014; Wilson et al., 2014). There are two main challenges here. One is that substance use prevention professionals are often unaware that substance use, violence and other problem behaviours among adolescents share common determinants. The other is that the prevention of different problem behaviours belongs to separate political portfolios in most countries, and therefore a cohesive, coherent and efficient approach to adolescent vulnerability is often lacking (mostly at national level).

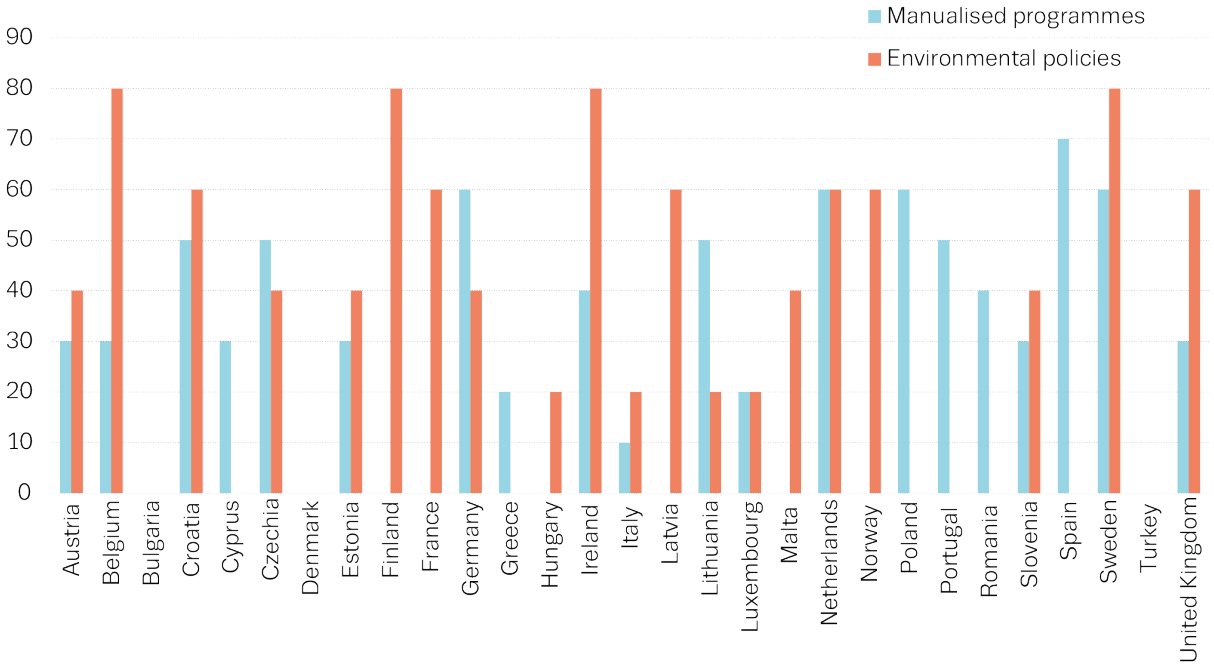
Germany (Lower Saxony), Finland, Sweden and Norway are among the few countries where violence prevention seems to be systematically integrated with substance use prevention at municipal level. In Germany, the Crime Council in Lower-Saxony has implemented the CTC Europe system, which is also implemented locally in parts of Croatia, the Netherlands, Sweden and the United Kingdom. When describing a prevention system it seems relevant to include this variable to assess how existing resources are being efficiently used: sometimes violence/delinquency strategies use the same (manual-based) interventions as and similar (environmental) policies to those in substance use prevention. This is particularly visible in studies of nightlife settings.

Programmes versus policies

One of the main debates between prevention professionals in Europe is whether manual-based programmes should be scaled up or emphasis should instead be given to local solutions that fit the particular circumstances of the culture, problem and infrastructure. This seems to be also one of the clearest dividing lines between prevention systems in Europe. Figure 2, based on scores from national reporting, offers a glimpse of the importance given to manual-based interventions and local policies across Europe. The overall importance of local policies is summarised based on information provided in the national prevention workbooks regarding the existence of (i) supporting school policies, (ii) local regulations on alcohol and cannabis, (iii) policies for nightlife settings and/or (iv) violence prevention and security. Countries with regulations on multiple levels were categorised as

giving high importance to environmental policies. The overall importance given to manual-based programmes in a given country was estimated by calculating a four-item score (scale 0-80) based on information from country reports on whether or not (a) manual-based programmes showing positive outcomes were provided (yes, partly, no), (b) a certification system was in place (yes, partly, no), (c) there was dissemination or implementation of these programmes throughout the country (large, small, no implementation) ([6]) and (d) countries reported that they provided evidence-based content, for example skills training . Generally, the higher the score, the more likely it is that manual-based programmes are viewed as important in the country.

FIGURE 2
Manual-based programmes versus local environmental policies



Note: Policies score was calculated across four dimensions: reported existence of (i) supporting school policies, (ii) local regulations on alcohol and cannabis, (iii) policies for nightlife settings and/or (iv) violence prevention and security. Programmes score was calculated based on reported (a) existence of evidence-based manual-based programmes (yes, partly, no), (b) a certification system in place (yes, partly, no), (c) extent of dissemination or implementation of these programmes throughout the country (large, small, no implementation) and (d) type of evidence-based content in the programmes.

Most importantly, manual-based evidence-based programmes and locally relevant experiences are not mutually exclusive and could be combined, as the experiences with CTC in some Member States show. In the CTC approach, communities first objectively analyse their specific need and problem profile and then choose the most suitable programme(s) to address their particular situation. Ideally, manual-based interventions that train competences and skills are complemented with local environmental policies.

([6]) Points allocated as follows: 20 for ‘yes’ or ‘large-scale’, 10 for ‘partly’ or ‘small-scale’, 0 for ‘no’.

Workforce

The workforce is a key component of any prevention system. In planning, implementing and evaluating prevention provision, it is important to consider both the numbers and the types of individuals that will be needed, and the skills they require. The prevention workforce is diverse. It is composed of individuals working in a variety of settings and in different roles, from frontline service providers to decision-making professionals and implementation practitioners, to name but a few. The professional background and training level of the workforce plays a crucial role in the successful delivery of prevention strategies.

In most countries across Europe, however, it is difficult to find information on the composition and training of the prevention workforce (Fixsen et al., 2005), except teachers who deliver interventions in schools. In this regard, prevention appears in stark contrast to the field of treatment, where most professionals need specific training and accreditation before they can treat and deal with clients.

The monitoring of prevention services is also challenging because of their diversity. Again in contrast to the usual situation found in treatment services, they are not necessarily bound to a physical facility. A small NGO operating from a home office can implement several school-based prevention interventions, but its services would not be captured by a tool analogous to the treatment facilities survey unless the NGO needed accreditation in order to operate. This is rarely the case in prevention.

The role of implementing professionals is crucial: the work of teachers and educators, family counsellors, staff in health, counselling and youth centres, police officers, outreach and social workers, and other professionals enrolled in delivering prevention is decisive for assuring positive outcomes. However, as mentioned above, there is no agreed means to monitor the quality of prevention work. There is also no common professional profile of a prevention worker.

Understanding the make-up of the workforce is important because professional cultures, beliefs and assumptions can be very influential. For instance, an entire professional group in a given country may decide that certain intervention types (e.g. indicated prevention) are unacceptable because they medicalise particular behaviours. Similarly, among regional or local decision-makers, there is often no common understanding of what substance use prevention (or prevention of problem behaviour) should consist of. Possibly because of the frequent assumption that prevention is informed decision-making, a focus on informational and educational approaches is still common in many countries despite limited evidence of their effectiveness (EMCDDA, 2015a).

The development and implementation of standards can help overcome these challenges. Since the publication of the international standards for prevention (UNODC, 2013) and the EDPQS (EMCDDA, 2011b), training initiatives and curricula have been developed. These tools seek to train prevention decision-makers and implementation professionals in effective prevention principles, and in how to operationalise them. A unified prevention training syllabus for relevant professionals across Europe has the potential to improve prevention systems by developing skills, and promoting discussion on the nature and scope of prevention. The Universal Prevention Curriculum (UPC) ([7]) is a first step in this direction. It is based on the UNODC standards of evidence (UNODC, 2013) and the EDPQS (EMCDDA, 2011b), and transmits key competences such as needs and resource assessment; selection and implementation of interventions and/or policies; and monitoring and evaluation. The UPC has been adapted for European conditions and audiences by the UPC-Adapt project ([8]) and the course manual will be published by the EMCDDA in 2019. It has been piloted in 10 European countries in 2018.

([7]) http://www.icuddr.com/curricula-upcutc/upc-curriculum/
([8]) http://upc-adapt.eu/

Target populations

The target population is part of the prevention system because its members are not just the final recipients of prevention; they have an active role in how prevention measures can (or cannot) be implemented. There is an obvious interaction between the characteristics of the target population and the suitability and relevance of interventions or policies (EMCDDA, 2011b). Some of these issues have already been addressed in subsection 'Assessing local needs'.

A key characteristic here is the vulnerability profile of the populations in terms of social exclusion: How many vulnerable groups are there? How deprived are they? And so on. A higher level of vulnerability in the target population is often associated with lower levels of education (Legleye et al., 2012, 2016). As a consequence, informational strategies to raise awareness about drugs and associated risks might not be the most relevant and pertinent choice. More effective contents of interventions for such vulnerable groups and individuals might be environmental measures or policies (that do not require a high level of personal agency; see subsection 'Environmental prevention approaches and policies'), or interventions that address underlying or associated behavioural challenges and obstacles by training people in social competence, academic performance and motivation (Sussman et al., 2004), or address poor family management (Bailey et al., 2009; Hill et al., 2010).

The acceptability of different programmes to the target population is also an important consideration. In particular contexts, families and school pupils might be reluctant to engage in new and additional interventions, even if they are evidence based (EMCDDA, 2013). If, however, prevention interventions or policies provide added value to their lives and development, their reception may be different. The reception of Unplugged ([9]) and the SFP ([10]) by pupils, teachers and vulnerable families was unexpectedly enthusiastic in Brazil, for example, because, for the first time, interactive role play and a focus on social inclusion and competence were provided to deprived public schools and marginalised families. Again this highlights the particular relevance of these approaches to vulnerable populations where drug use is often only one of many (more important) problems, rendering programmes such as awareness days less likely to be appealing.

When programmes originating from another country are adapted to new contexts and cultures, it is good practice to involve the target group in the adaptation process, in assessing its relevance and adequacy and in making suggestions in order to guarantee that the intervention is meaningful to them (EMCDDA, 2013; Rhodes et al., 2016; UNODC, 2009). This principle does not apply only to manual-based interventions, but could — in a participatory approach — generally improve more elements of a prevention system. This principle provides support to the idea of developing prevention systems in which the central level and research centres work closely with local communities in developing interventions.

([9]) https://www.eudap.net/Unplugged_HomePage.aspx
([10]) https://www.strengtheningfamiliesprogram.org/

Moderators

Moderators within a prevention system are those aspects of social, political and cultural life that influence the functioning, implementation and effects of prevention, but are generally not themselves modified by prevention systems. A comprehensive perspective of a prevention system would greatly benefit from taking possible moderators into account. This is particularly important because moderators are not generally considered in conceptualisations of prevention interventions and do not feature adequately in research studies. Yet they may have much practical relevance, especially in the field of cross-national exchange of interventions and policies. The following moderators are macro-level factors that have been put forward in publications and debates about the wider determinants of human behaviours or the adoption of behaviour change interventions (EMCDDA, 2013; Wilkinson and Picket, 2010). Some of them, however, have rarely been considered relevant to the implementation or success of prevention strategies.

Social inequality: it has been argued that a range of social problems, including substance use, teenage pregnancy and violence, are more prevalent in countries with high levels of social and health inequality (EMCDDA, 2013; Wilkinson and Picket, 2010) because of increased competition for status and positional goods, which affects people's physiological and physical wellbeing. A WHO (CSDH, 2008) report, and the Marmot Review (Marmot et al., 2010) for the United Kingdom, confirmed that inequalities in health, including substance use problems, are related to social inequality.

Social capital: Francis Fukuyama (2001, p. 7) defined social capital as 'an instantiated informal norm that promotes cooperation between two or more individuals'. Social capital norms lead to cooperation in groups and therefore are related to traditional virtues such as honesty, the keeping of commitments, reliable performance of duties and reciprocity (Fukuyama, 2011). One important factor in social capital is particularistic trust, which is characterised by three different forms: trust in family, trust in neighbours and trust in people one personally knows. Data from the World Values Survey ([11]) suggest that, in general, the level of trust in family is comparably high among all European countries, with trust in neighbours or personal acquaintances never reaching the levels of family trust. This in turn may have an impact on community organisation and openness towards adopting new social interventions: if societies with low social capital have a 'narrow radius of trust' (Fukuyama, 2001, p.9), their members do not easily cooperate with outsiders. Consequently, in societies where social capital resides largely in families and a rather narrow circle of friends, the adoption of preventive interventions may be more difficult, particularly if the members of such groups do not cooperate with each other and do not get involved in new activities.

Social norms: social norms, as moderators, are those general social norms at population level that are not easily modified by prevention policies or interventions. These are different from in-group social norms, which are malleable through some kinds of prevention strategies (e.g. normative education and environmental prevention). Descriptive norms ('everybody does that') and the social acceptance of a behaviour (injunctive norms) seem to influence the initiation into problem behaviour and substance use (Berkowitz, 2002). They can therefore boost or undermine the reach and impact of prevention interventions.

Alcohol and tobacco policies: national alcohol and tobacco policies are identified as moderators because they are often independent from prevention systems, even when counteracting their objectives. In an ideal situation, macro-level alcohol and tobacco control policies would be an integral part of a prevention system. In a slowly increasing number of countries, such as France and most Nordic countries, this is the case. However, for the most part, alcohol and tobacco policies continue to be separate policy domains from substance use prevention. Furthermore, in some jurisdictions, the alcohol industry may have a participatory role in (influencing) policymaking, not necessarily in line with the interests of public health (Brown, 2015; Knai et al., 2015). At policy level, this may translate into

([11]) http://www.worldvaluessurvey.org/wvs.jsp

national drug coordinators being unable to intervene with regulatory approaches on advertising, pricing or taxation (Burkhart, 2011). In such contexts, professionals strive to compensate for industry-oriented macro-level policymaking with local prevention interventions.

Drugs legislation: there is currently no strong evidence to suggest that the harshness of legislation on illicit drugs (consumption or possession for use) has a direct or simple impact on substance use behaviour (EMCDDA, 2011a, p. 45). There are, however, concerns that highly punitive drug laws might hamper the implementation and reach of selective and indicated prevention interventions: if vulnerable substance users need (or wish) to conceal their drug use, they will not openly enrol and engage in such interventions (Booth et al., 1998; Cunningham et al., 1993; Finney and Moos, 1995).

While it is evident that these five moderators are likely to have significant impacts on prevention systems, it is unclear which combination(s) of them would best contribute to supporting prevention systems and boosting their outcomes regarding substance use related problems. Such a comprehensive analysis across Europe would demand data that are currently not (all) available. Complete data are available only for alcohol and tobacco control, and for income inequality. Such an analysis would also require that a score on the ´harshness' of drugs legislation be developed. Furthermore, available data on social capital and social norms do not allow the development of a stringent theoretical framework and a clear interaction with prevention systems (similar to the alcohol control score, for example).

Discussion

Differences in prevention systems across Europe

This report has described a model introducing the key components of a prevention system with the intention of raising awareness of factors that are important to consider when innovative and effective interventions and policy options are introduced in a country. Considering these factors can also help explain why certain interventions/policies work better in some countries than in others. This in turn might also help in promoting informed views about prevention. For example, it is less likely that introducing more evidence-based interventions can have an impact in a country where the moderators do not provide synergies. The model described here can be used as a basis for improving prevention activities.

In terms of similarities, most European countries have standards in place (although little is known about their use at local level), and their decision-making and funding sources are centralised, while services operate independently. In terms of differences, however, countries could be categorised according to whether they primarily focus on:

- implementing manual-based programmes;
- implementing local environmental policies; or
- having central or local quality control mechanisms.

Using available data, it is possible to tabulate these three dimensions of prevention systems alongside the potential impact of some specific moderators. Given the above-mentioned limitations, the overview provided here is approximate and needs to be interpreted with caution. In general, the overview seems to confirm the existence of two or three partially overlapping clusters of countries: one with predominant use of manual-based programmes, one with a predominant focus on local environmental policies together with quality control, and one where none is predominant. A 'supportive' moderator score seems to overlap to a great extent with strong prioritisation of local environmental strategies.

TABLE 1
Overview of main determinants of prevention systems in Europe

Country	Manual-based programmes	Local environmental policies	Quality control	Moderators
Croatia				No information
Belgium				Medium support
Ireland				High support
Sweden				High support
United Kingdom	**+ R&D**			High support
France				High support
Finland				High support
Norway				High support
Czechia				Medium support
Germany	**+ R&D**		In some regions	Low support
Spain	**+ R&D**	In some regions	In some regions	Low support
Netherlands	**+ R&D**			High support
Poland	**+ R&D**			Medium support

Greece				Low support
Italy				Medium support
Lithuania				Low support
Austria				Low support
Portugal				Low support
Slovenia				High support
Bulgaria				Low support
Denmark				Medium support
Estonia				Low support
Cyprus				Low support
Latvia				Low support
Luxembourg				Low support
Hungary				Medium support
Malta				Medium support
Romania				Low support
Slovakia				Medium support
Turkey		No information		No information

Note: Dark brown, high importance; mid-brown, medium importance; pale brown, low importance; + R&D, additional high activity in research and development of prevention interventions.

Possible ways forward

This section highlights some of the areas for potential development with regard to the prevention system model and its potential applications.

Certification and accreditation

Certification and accreditation are important tools in regulating the safety of interventions and the proficiency of professionals. Prevention can be harmful (Moos, 2005; Rhule, 2005; Sumnall and Bellis, 2007) and developing a certification system for prevention interventions can help to avoid exposing people (and young people in particular) to ineffective or even harmful interventions and allowing such interventions to receive funding and support. The Council of the European Union (2015, p. 4) has partly addressed this concern in its conclusions by demanding that 'those implementing prevention interventions have access to and rely on available evidence-based programmes'. The EMCDDA and the CTC Europe consortium are developing a European registry of evidence-based programmes with a high selection threshold and three distinctive features: (1) it is interconnected with national registries in some countries (Germany, Spain, Italy, the Netherlands, Poland, Sweden and the United Kingdom) that share a core set of selection criteria, (2) it focuses not only on evidence, but also on implementability, giving voice to the experiences of practitioners, and (3) it has also the objective of developing criteria for the scoring and inclusion not only of manual-based programmes, but also of local policies. The Xchange prevention registry is now online within the EMCDDA's Best Practice Portal ([12]).

One risk of setting high requirements for certification in terms of outcome evaluation (e.g. multiple trial assessment of single component effects, of combined effects and of context moderator effects, as Faggiano et al., 2014, demand) is that it may result in few interventions passing certification in most countries. An alternative option might involve allowing the certification of programmes that are recognised as evidence based, even if they do not have their own built-in outcome evaluation. Certification for these programmes would need only to prove that appropriate cultural and contextual adaptations were made and that their feasibility was tested in a pilot implementation. Thus, either evidence is established directly from an intervention's own high-quality evaluation or the intervention is based on an established evidence-based programme and proves that it is implemented with high fidelity. A certification process backed by this reasoning would therefore need at least two decision pathways: one for entirely innovative programmes that need convincing designs for an outcome evaluation; and another for transferred programmes with proven efficacy or effectiveness. An important consideration when developing certification exercises lies in finding a feasible balance between scientific rigour and the promotion of high-quality prevention practice in countries where prevention and prevention research are underfunded (Faggiano et al., 2014).

In Europe, prevention professionals generally implement individual interventions of low intensity. Most of these are virtually impossible to certify, because an official certificate of conformity to a quality norm can be given only to a product with standardised parameters (contents and delivery) and proven fidelity. Interventions vaguely defined and implemented with high flexibility can and should be assessed for (process) quality by means of, for example, the EDPQS, but would be unlikely to receive an official licence for use, as required in Czechia for example.

In this context, the training level of prevention professionals becomes a crucial element to be addressed. The draft conclusions of the Council of the European Union (2015, p. 4) have also addressed this need by requiring that 'those developing prevention interventions have competencies and expertise on prevention principles, theories and practice, and are trained and/or specialised professionals who have the support of public institutions (education, health and social services) or work for accredited or recognised institutions or NGOs'.

([12]) http://www.emcdda.europa.eu/best-practice/xchange

The prevention workforce might benefit from voluntary training offered by a variety of academic and non-academic institutions. The Universal Prevention Curriculum (UPC) ([13]), for example, offers one 9-week curriculum on evidence-based prevention principles for decision-makers (e.g. commissioners) and a more practical curriculum for prevention practitioners. The full version of the UPC is yet to be adapted, integrated into European academic curricula and implemented in European countries. An EU-funded project (UPC-Adapt) has produced an adapted, condensed version of the UPC (the European Universal Prevention Curriculum or EUPC). Its reference manual, the EUPC handbook, will be published in 2019 within the EMCDDA manual series.

Another option involves defining — based on the standards — common (i.e. international) training outcome criteria. This would set the bar higher for the professionalisation of prevention professionals. The UPC training programme provides a certificate from the International Centre for Credentialing and Education of Addiction Professionals (ICCE) in Sri Lanka. National accreditation agencies, or a common European one, could be a next development for EU Member States.

Another option would involve restricting authorisation for prevention work to accredited prevention professionals, as in Czechia. In the treatment and medical fields this is taken for granted, but rarely so in prevention. Such a requirement, however, implies that there is a sufficient number of professionals whose knowledge and skills could be accredited, and that there are financial incentives to acquire such specialised training and accreditation. Germany has recently issued a prevention law that earmarks mandatory funds from health insurance companies for prevention, which might act as an incentive.

More generally speaking, information on how well standards and regulatory policies are actually implemented at local level (e.g. on selling or serving alcohol, or on protecting young people in nightlife settings) is rarely available. A study, by de Vocht et al. (2016), about the reality of licensing in local areas in England shows how such data can be obtained and meaningfully related to prevention objectives. It is also difficult to ascertain the extent to which different sectors or ministries cooperate with each other, quality standards, guidelines and evidence criteria are followed, and certified programmes are evidence based.

There is sparse research on the direct relationship of social capital (and its subcategories) with the implementation of prevention or with substance use. Only a handful of publications seem to consider those aspects (e.g. Calafat et al., 2011; Hawe and Shiell, 2000). In addition, the number of EU Member States participating in the World Values Survey and the European Social Survey seems to be decreasing. More etiological and conceptual research is needed about the interaction between social norms and substance use. Currently it focuses on normative fallacy, i.e. the frequent overestimation of peer substance use among adolescents, which gives an overview of descriptive norms among young people. For a deeper analysis of prevention systems, it would be helpful to have more comprehensive information about the level of injunctive norms (i.e. what is generally deemed acceptable) in broader strata of the population. These norms might influence both substance use and the acceptance of environmental prevention strategies such as limitations on serving sizes, opening hours, advertising and outlet density.

Epidemiology

For the most part, drug-monitoring systems include in their aims the use of data to inform prevention policies and strategies. The data most frequently produced and used are, however, prevalence data, such as lifetime, last year and last month use. They are helpful for assessing how normalised a given substance is, and whether or not prevention policies alongside other social policies (and social developments independent from them) are having an impact on substance use. This kind of information, however, falls short of giving information about *how*, *for whom* and *where* to do prevention.

([13]) http://www.icuddr.com/curricula-upcutc/upc-curriculum/

Treatment systems have to adapt flexibly to each newly emerging and changing drug use pattern that generates another type of clients, problems and needs. The target populations of prevention (systems), however, tend to be well known (EMCDDA, 2008), are similar across countries and continents (UNODC, 2013) and do not change with newly emerging drugs. There is consensus about the social conditions or personal vulnerabilities (EMCDDA, 2009) that increase the propensity for substance use and for other risk behaviours, regardless of the specific substance concerned. Since being informed (or not) about drugs and their dangers has only a marginal and not necessarily protective effect (Dermota et al., 2013; Yap et al., 2012), for the most important prevention approaches it is also not essential to have detailed risk profiles of drugs. A specific prevention response is not needed for every new drug that may appear, since evidence-based prevention targets more the rather stable behavioural, environmental and psychological determinants of drug use behaviour, and less its cognitive and informational aspects (Burkhart, 2015b; EMCDDA, 2016).

The most relevant data for planning and decision-making on suitable prevention responses would include local or regional estimates of alcohol and substance use and also information on other risk and protective factors, for example those affecting academic performance, positive youth development, school dropout, sexual risk behaviours, delinquency and violence. The CTC system uses questionnaires to survey such aspects ([14]) in its European implementations in Lower Saxony in Germany, some provinces of Croatia, the Netherlands, Sweden and the United Kingdom. Such data help to decide which kind of intervention to prioritise in different locations and help to foster prevention systems at community level (EMCDDA, 2013). Other than in CTC, this kind of data is either rarely collected or not used: the European School Survey Project on Alcohol and Other Drugs (ESPAD) questionnaire contains some similar items that have hardly ever been analysed.

To support prevention objectives — rather than assess the drug phenomenon alone — it is important that monitoring systems use local data and integrate it with information on crime prevention and positive youth development. Iceland is reported to have such a system (Sigfúsdóttir et al., 2009). Interestingly, only a small number of countries (mostly Nordic) report that they have overarching prevention strategies that integrate prevention of crime and of violence (including bullying in schools).

Limitations

This exercise is limited by the incomplete and non-standardised information that is available at national, but not local, level. To a great extent, data were extracted from the narrative reports included in the prevention workbooks and national reports (2014-2017), provided to the EMCDDA by the 28 EU Member States, Norway and Turkey.

There are also the sometimes considerable variations within countries such as Germany, Spain and Italy, which allow statements to be made regarding only some of their federative units.

Mass media (warning) campaigns could have been a proxy for how much decision-makers are aware, or not, of the evidence base for prevention. However, they have deliberately not been included in this analysis because their contents, reach and duration are too unpredictable and fluctuating to be taken as variables of a system.

Despite these challenges and limitations, an approximate description of the main components of prevention systems has been provided here. It needs to be refined and corroborated by improved data in the future.

([14]) http://www.blueprintsprograms.com/assess-needs

Conclusions

Manual-based programmes are relatively rare in Europe and only in a handful of countries are they an essential part of prevention strategies. This particular feature of the European context makes it difficult to apply the findings and recommendation from the international literature on the implementation of prevention at population level. The main concern of the international literature, mainly generated in North America, is about scaling up prevention programmes and identifying the factors that facilitate this: a strong scientific knowledge base, in terms of which prevention programmes work, for whom, for how long, and under what conditions; robust strategies for scaling up these interventions and adapting them to local conditions; and investment in prevention by communities, NGOs and governmental organisations (Brown and Beardslee, 2014). So, while manual-based evidence-based programmes may be an effective way of reaching relatively large populations, in some European countries they may be in conflict with professional traditions about how to deliver prevention.

Only a few countries — mostly from the northern parts of Europe — report on local policies that change the normative and physical environments that can affect behaviour. For many European countries, a major part of prevention practice continues to be firmly embedded in treatment traditions of providing services that target, approach and counsel people individually. This has facilitated the development of flexible responses for vulnerable groups (selective prevention) and vulnerable individuals (indicated prevention) in Europe, but prevention by means of population-based intervention appears to be underused.

In Europe, institutions at national or regional level have often a stronger role than communities and civil society. But institutional and sectorial silos can make cooperation more difficult in a multi-context, multi-disciplinary activity such as substance use prevention. This is probably easier in countries where prevention is commonly delivered at municipal level, and where multi-sector cooperation is straightforward.

The challenges summarised here might also be reframed as opportunities for adapting prevention and implementation sciences. This might include a number of steps, including involving the professionals themselves in implementation science. It has been argued that 'the traditional translational pipeline — which moves from program development and efficacy to effectiveness testing, followed by implementation research and practice — needs to be informed by more practice-based implementation' (Brown and Beardslee, 2016, p. S102). If professional training in prevention focused on the importance of the critical building of evidence as well as how to intervene with people, professionals' attitudes might change.

In addition, if prevention science gave more attention to identifying the effective components of interventions, by novel evaluation techniques that enable this (e.g. the multiphase optimisation strategy; Collins et al., 2014), less complex but more robust interventions could be developed. The UPC ([15]) focuses on training prevention professionals in evidence-based practices and principles that are derived from evidence-based programmes.

Promoting and advancing a comprehensive definition of prevention is important to increase cooperation among different policy sectors. Prevention professionals and policymakers need to make it clear that behavioural health, cognitive health and social functioning have crucial aspects in common, such as reasoning, memory, language, empathy, impulse control and attention capacity of young people. Research suggest that evidence-based interventions can improve these outcomes for young people, all of which can benefit the health, education, social and criminal justice sectors (Brown and Beardslee, 2014). Successfully scaling up evidence-based prevention is, however, likely to depend on the joint involvement and interest of these stakeholders. Promoting and advancing a

([15]) http://www.icuddr.com/curricula-upcutc/upc-curriculum/

comprehensive definition of prevention might therefore facilitate cooperation between these different sectors.

Population-based prevention approaches that target multiple behaviours have advantages over those that emulate treatment by focusing on individual counselling. The concept of prevention as 'evidence-based socialisation' (Sloboda and Petras, 2014) offers a useful paradigm that also makes it clear that prevention and harm reduction have many objectives in common and form part of a public health continuum. This is essential in order to advocate prevention in the European political landscape, where harm reduction is an accepted and established component of drug policies in most countries.

The conclusions of Langer et al. (2016) are particularly pertinent here to pinpoint possible ways forward. The authors suggest that prevention provision would be improved if those working in the field considered the following approaches:

- in general, pay more attention to decision-making processes and structures as an effective organisational tool to increase research receptivity;
- reduce cognitive barriers to the use of evidence during decision-making;
- nudge behaviour towards using evidence;
- create a professional norm of evidence use as a part of decision-makers' work ethos;
- provide active organisational/managerial facilitation of staff's evidence use;
- formalise and embed evidence use mechanisms into decision-making processes and structures, in particular for organisations to have convenient access to evidence;
- pay more attention to the amplifying effects of embedding evidence use mechanisms into organisational structures, in terms of both the size of the effect (i.e. increased and sustained evidence use) and the spread of the effect (i.e. from individual decision-makers to organisational behaviour/performance);
- carefully consider the literature on organisational change for relevant models and techniques to support structures and processes.

The EDPQS represent an important step in this direction. There remains a need to complement these with training curricula, more prevention-relevant local epidemiological data and more structural insights into prevention systems, especially at local level.

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